

CLASSIFICATION CANCELLED

DATE FEB-12-1959

Edgar J. Murphy

September 5, 1947

CO-ORDINATING ORGANIZATION DIRECTOR

OAK RIDGE NATIONAL LABORATORY

AUTHORITY DELEGATED BY AEC 9-10-57

CENTRAL FILES NUMBER

X 47-9-168

1587

To: W. H. Ray

From: T. H. J. Burnett

Subj: Liquid Waste Monitoring - August, 1947.

The routine surveys were made of the outlet water at the Settling Basin and at White Oak Dam approximately on alternate days.

Gamma activity was measured using a thin-walled GM tube in a 1" brass container immersed in the sample. Discharge averages in mr/hr were obtained as follows:

Settling Basin - 0.169

White Oak Dam - 0.019

Although this indicates a 9 fold reduction in activity by the system, the accuracy of the above values is uncertain.

Beta activity of the discharges from the Settling Basin as reported by the 206 area analyses in β cts/min/ml was as follows:

Average - 221

Highest - 723 - August 19

Lowest - 45 - August 4

The enclosed graph shows the approximate curies discharged from July 13 through August 31.

THJB:ejp

cc:

H. Fierman

W. H. Ray

K. Z. Morgan

C. E. Haynes

J. S. Felton

T. H. J. Burnett

C. File

R. File

T. H. J. Burnett
T. H. J. Burnett

This document has been approved for release to the public by:

David R. Hamrin 5/4/95
Technical Information Officer Date
ORNL file

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A line graph showing a fluctuating trend over time. The line starts at a low point, rises to a peak, then fluctuates with several smaller peaks and troughs before ending at a high point. The x-axis is marked with vertical dashed lines, and the y-axis is marked with horizontal dashed lines.

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~~CONFIDENTIAL~~

CONFIDENTIAL

W.H. Ray 1-22-41

Return to C.F.
XT

November 7, 1947

~~CONFIDENTIAL~~

To: R.H. Firminhac

From: T.H.J. Burnett

Subject: Liquid Waste Monitoring - October 1947

CLINTON LABORATORIES
CENTRAL FILES NUMBER
47-11- 339

The routine surveys were made of the outlet water at the Settling Basin and at White Oak Dam five days a week.

Gamma activity, measured by immersion of a thin walled GM tube within a 1" brass cyliner into the sample, was about the same as last month. Discharge averages were obtained as follows:

	October	September
Settling Basin	.116 mr/hr	.111 mr/hr
White Oak Dam	.011 mr/hr	.02 mr/hr
Monthly Rainfall	1.99 inches	2.20 inches

The above indicates a slight improvement over last month as far as concentration reduction, even with less rain, which may point to the slowing of flow rate as a significant factor, since the dam gate was closed for 51% of the month.

Upon completion of computations for water sample activity of White Oak Dam overflow, data will be available of curies discharged into the Clinch River.

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CLASSIFICATION CANCELLED
DATE AUG 26 1971
For the Atomic Energy Commission
TED REDMON
for the
Chief, Declassification Branch

Beta activity of the discharges from the Settling Basin as reported by the 206 area analyses in μ cts/min/ml. was as follows:

Average	161	
Highest	479	October 22
Lowest	32	October 10

The enclosed graph shows the approximate curies discharged daily from October 1 thru October 31. Total for month: 59.1 curies into White Oak Creek.

T.H.J. Burnett
T.H.J. Burnett

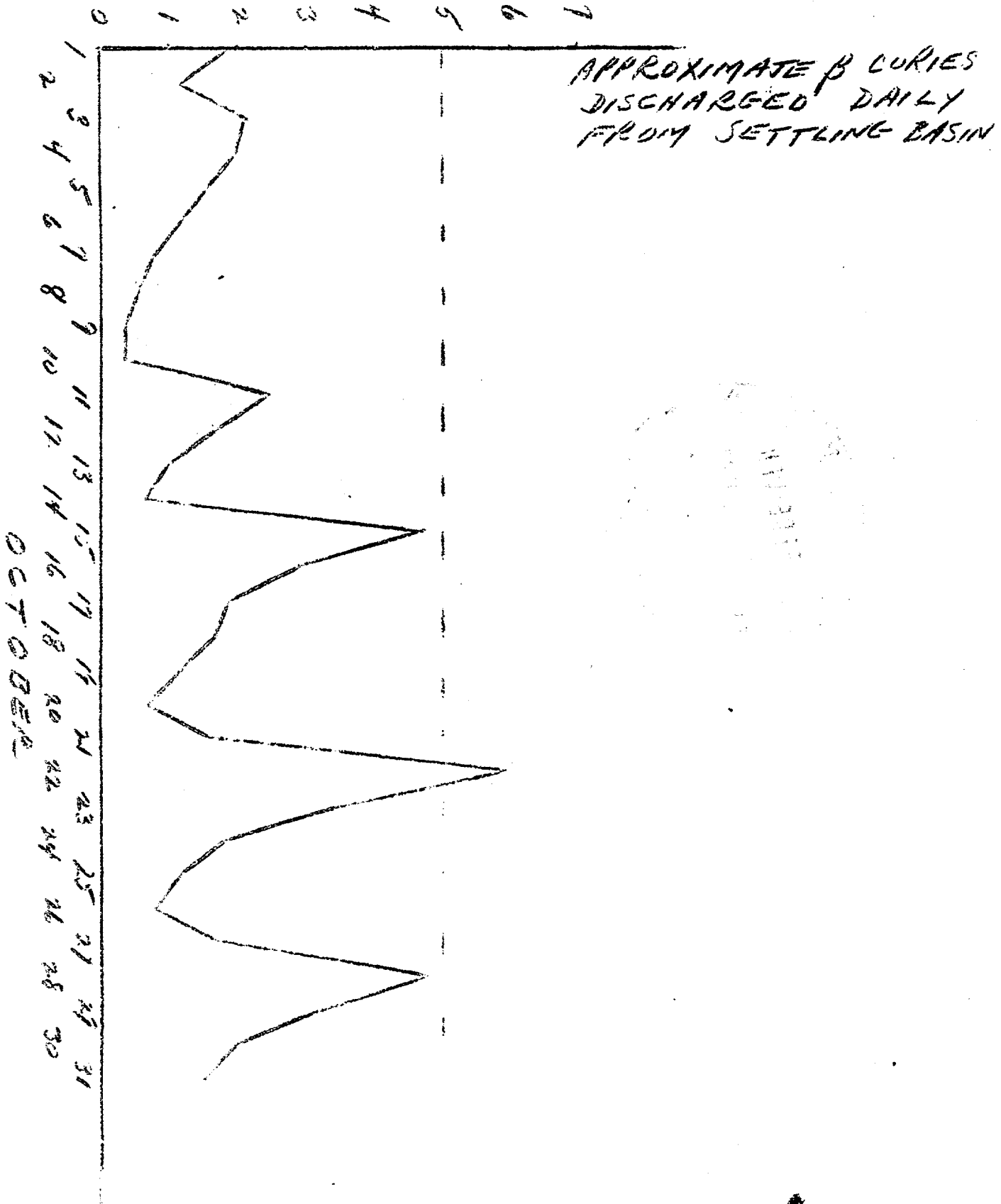
THJB:rr

Distribution

1. R.H. Firminhac
2. K.Z. Morgan
3. P. Western
4. C.E. Haynes
5. J.S. Felton
6. W.H. Ray
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David R. Hamm 5/11/95
Technical Information Officer Date



R. A. ~~Stromberg~~

December 5, 1947

CLASSIFICATION CANCELLED
Ted Davis 1/24/95
 ADD signature _____ Date _____
 Single rereview of CCRP-declassified documents was authorized by DOE Office of
 Declassification memo of August 22, 1994.
 ing - November 1947

CLINTON LABORATORIES
CENTRAL FILES NUMBER
47-12-297

Discharge averages and other pertinent data were obtained as follows,
with comparative figures for the preceeding months:

	November	October	September
Settling Basin	.095 mr/hr	.116 mr/hr	.111 mr/hr
White Oak Dam	.005 mr/hr	.011 mr/hr	.012 mr/hr
Monthly Rainfall	4.76 inches	1.99 inches	2.20 inches
Curies Discharged	63.4 Total	59.1 Total	74.6 Total

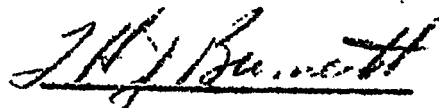
[REDACTED] of the [REDACTED] and 32 [REDACTED] in any [REDACTED] in several criminal [REDACTED]

Noteworthy above is the improvement in concentration reduction this month, as a result of larger rainfall, of the activity discharged into the Clinch River. Because of the larger volume of discharge, this does not mean that the total curies discharged into the Clinch River was less.

Daily average beta activity of the discharges from the Settling Basin as reported by the 206 area analyses in $\mu\text{Cts/min/ml}$. was as follows:

Average	175	
Highest	771	November 25
Lowest	15	November 23

The attached graph shows the approximate curies discharged daily from November 1 thru November 30, with ordinates interpolated for rainfall in excess of 0.1 inch. It will be seen that unfortunately the predominant amount of rainfall occurred early in the month rather than near the 25th and 26th which were the two instances of violation of Section B-2 of Appendix C-5 to the Rules and Procedures concerning Radioactive Substances and Associated Hazards.


T.H.J. Burnett

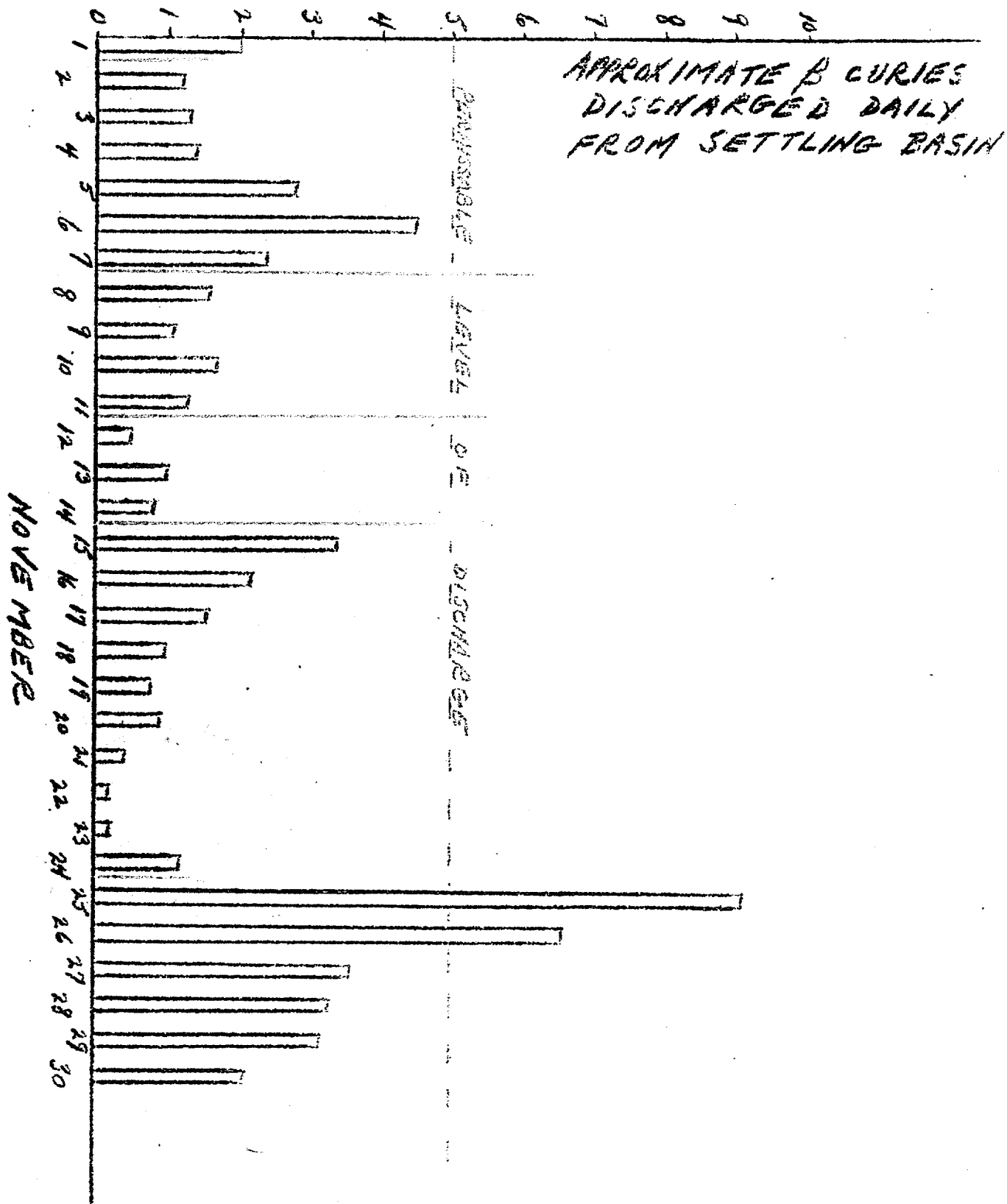
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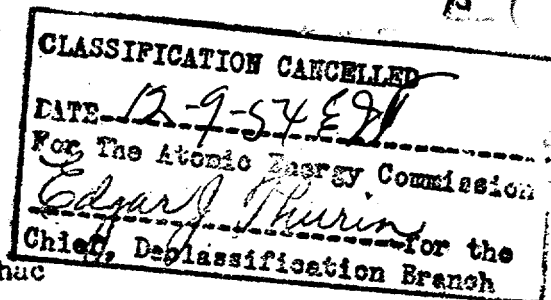
Distribution

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Technical Information Officer Date
ORNL file





January 3, 1948

27

CLINTON LABORATORIES

CENTRAL FILES NUMBER

48-1-87

To: R.H. Firminhac

From: T.H.J. burnett

Subject: Liquid Waste Monitoring - December 1947

A total of 20 routine daily surveys were made of the outlet waters at the Settling basin and at White Oak Dam.

Gamma activity, measured by immersion of a thin-walled Ge tube within a 1" brass cylinder into the sample, averaged somewhat more than the previous months either as a result of minor variations in composition, or more likely, as a result of the specific samples taken. As repeatedly mentioned before, a better picture of total activity discharged and specific variations will only be achieved by continuous water monitoring equipment being installed.

Discharge averages and other pertinent data were obtained as follows, with comparative figures for preceding months:

	December	November	October
Settling Basin	.127 mr/hr	.095 mr/hr	.116 mr/hr
White Oak Dam	.011 mr/hr	.005 mr/hr	.011 mr/hr
Monthly Rainfall	3.00 inches	4.76 inches	1.99 inches
Curies Discharged	62.0 Total	63.4 Total	59.1 Total

Daily average beta activity of the discharges from the Settling basin as reported by the 206 area analyses in μ cts/min/ml. was as follows:

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David R. Hamlin
Technical Information Officer
ORNL Site

5/11/95

Average 168


Highest 440

Lowest 50

December 9


December 25

The attached graph shows the approximate curies discharged daily from December 1 thru December 31, with ordinates interpolated for rainfall in excess of 0.1 inch. The only instance of exceeding the permissible level of activity discharge was slight and in the period of maximum rain for the month so can not be considered as having been greatly hazardous.

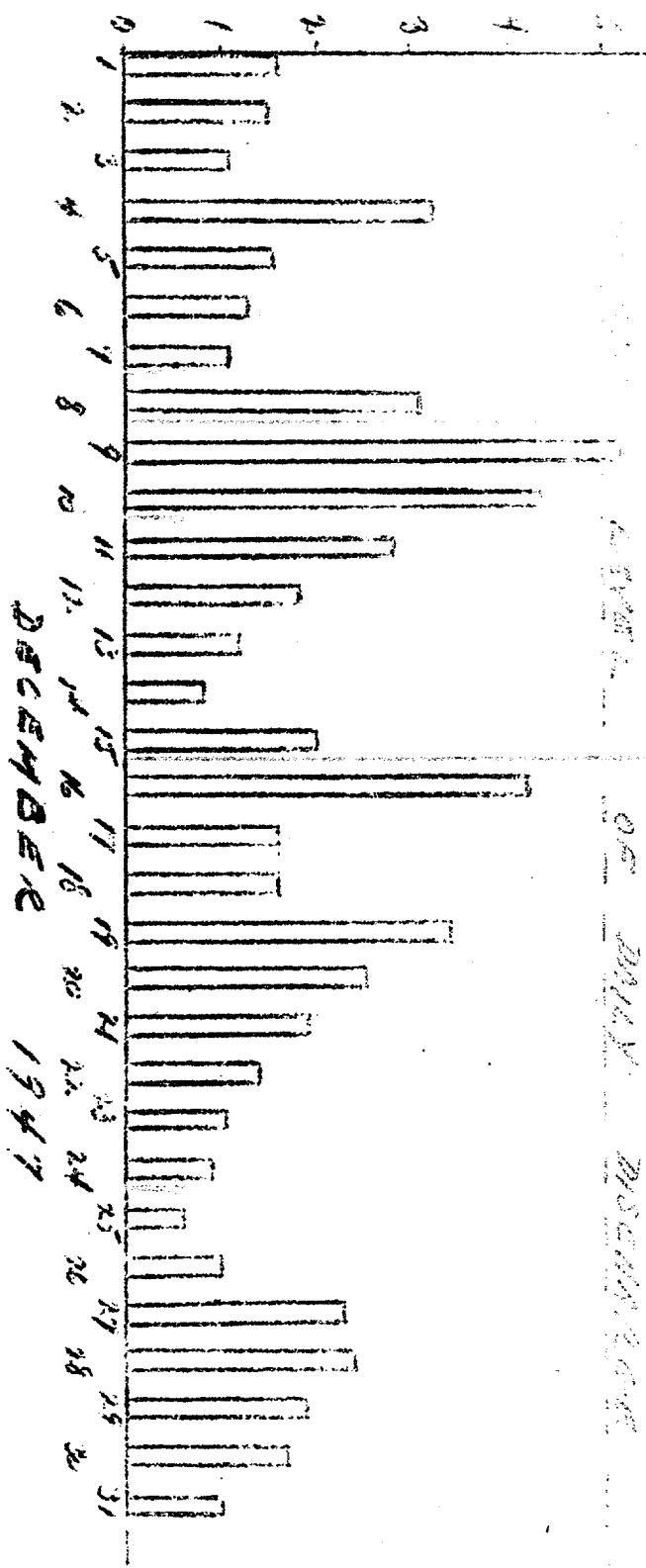

T.H.J. Burnett

THJB:rr

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CLASSIFICATION CANCELLED

DATE

12-9-54

For The Atomic Energy Commission

Edgar J. Thuring
for the
Chief, Declassification Branch

E. J. Withrow
This document consists of 2
pages and figures.
No. 7 of 14 copies. Series A. *c:7*

February 2, 1948

CLINTON LABORATORIES

CENTRAL FILES NUMBER

48-2- 123

To: J.H. Roberson
From: T.H.J. Burnett
Subject: Liquid Waste Monitoring - January 1948

A total of 21 routine daily surveys were made of the outlet waters at the Settling Basin and at White Oak Dam.

Gamma activity, measured by immersion of a thin-walled GM tube within a 1" brass cylinder into the sample, averaged much less than the previous months chiefly due to the smaller total activity discharged.

Only by the use of continuous monitoring equipment can a true evaluation of the situation result, since the variations are so large that interval sampling is not accurately representative.

Discharge averages and other pertinent data were obtained as follows, with comparative figures for preceeding months:

	January	December	November
Settling Basin	.039 mr/hr	.127 mr/hr	.095 mr/hr
White Oak Dam	.004 mr/hr	.011 mr/hr	.005 mr/hr
Monthly Rainfall	3.48 inches	3.00 inches	4.76 inches
Curies Discharged	32.2 Total	62.0 Total	63.4 Total

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David K. Hannin
5/14/5
Deputy Information Officer
CLINT 114

Daily average beta activity of the discharges from the Settling Basin as reported by the 206 area analyses in μ cts/min/ml was as follows:

Average	82	(\approx 0.23 mrep/hr
Highest	393	January 25
Lowest	10	January 21

The attached graph shows the approximate curies discharged daily from January 1 thru January 31, with ordinates interpolated for rainfall in excess of 0.1 inch. The discharge of activity from the tank farm was uniform and low during most of the month. When possible the minimum of sudden large variations will result in operation with optimum dilution.

T.H.J. Burnett
T.H.J. Burnett

THJB;rr

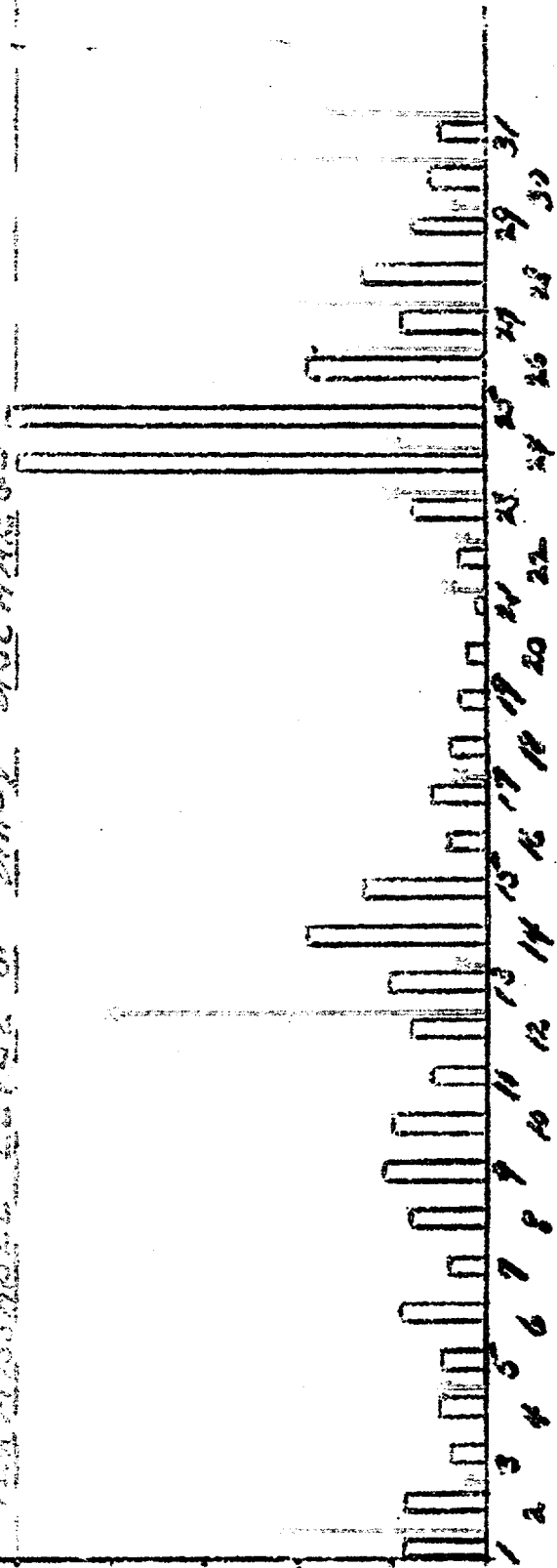
Distribution

1. J.H. Roberson
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APPROXIMATE E CURVES
DISCHARGED DAILY
FROM SETTLING BASIN

0 1 2 3 4 5 6 7 8 9 10

PERMISSIBLE LEVEL OF DAILY DISCHARGE



JANUARY 1948

C. file

CLINTON LABORATORIES
CENTRAL FILES NUMBER

47-10 - 99

October 1, 1947

Classification Cancelled

To: R.H. Firminhac

From: T.H.J. Burnett

By Authority Of

By [Signature] Date AUG 25 1971

Subject: Liquid Waste Monitoring - September 1947

The routine surveys were made of the outlet water at the Settling Basin and at White Oak Dam approximately on alternate days.

Gamma activity was measured using a thin walled GM tube in a 1" brass container immersed in the sample. Discharge averages in mr/hr were obtained as follows:

Settling Basin - .111

White Oak Dam - .012

CLASSIFICATION CANCELLED

ADD signature

Date

Single rereview of CCRP-declassified documents was authorized by DOE Office of Declassification memo of August 22, 1994.

Subject to limitations of method, a decrease in activity of approximately 10 fold is indicated. If the assumption is made that α and β are present in the same ratio consistently, with 74.6 curies of β activity being discharged this month it would follow that 7.5 β curies escaped.

Beta activity of the discharges from the Settling Basin as reported by the 206 area analyses in β cts/min/ml. was as follows:

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David L. Hamlin 5/30/95
Technical Information Officer Date
ORNL Site

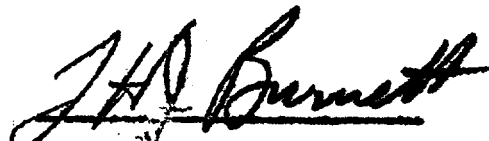
Average 212

Highest 512 September 5

Lowest 68 September 3

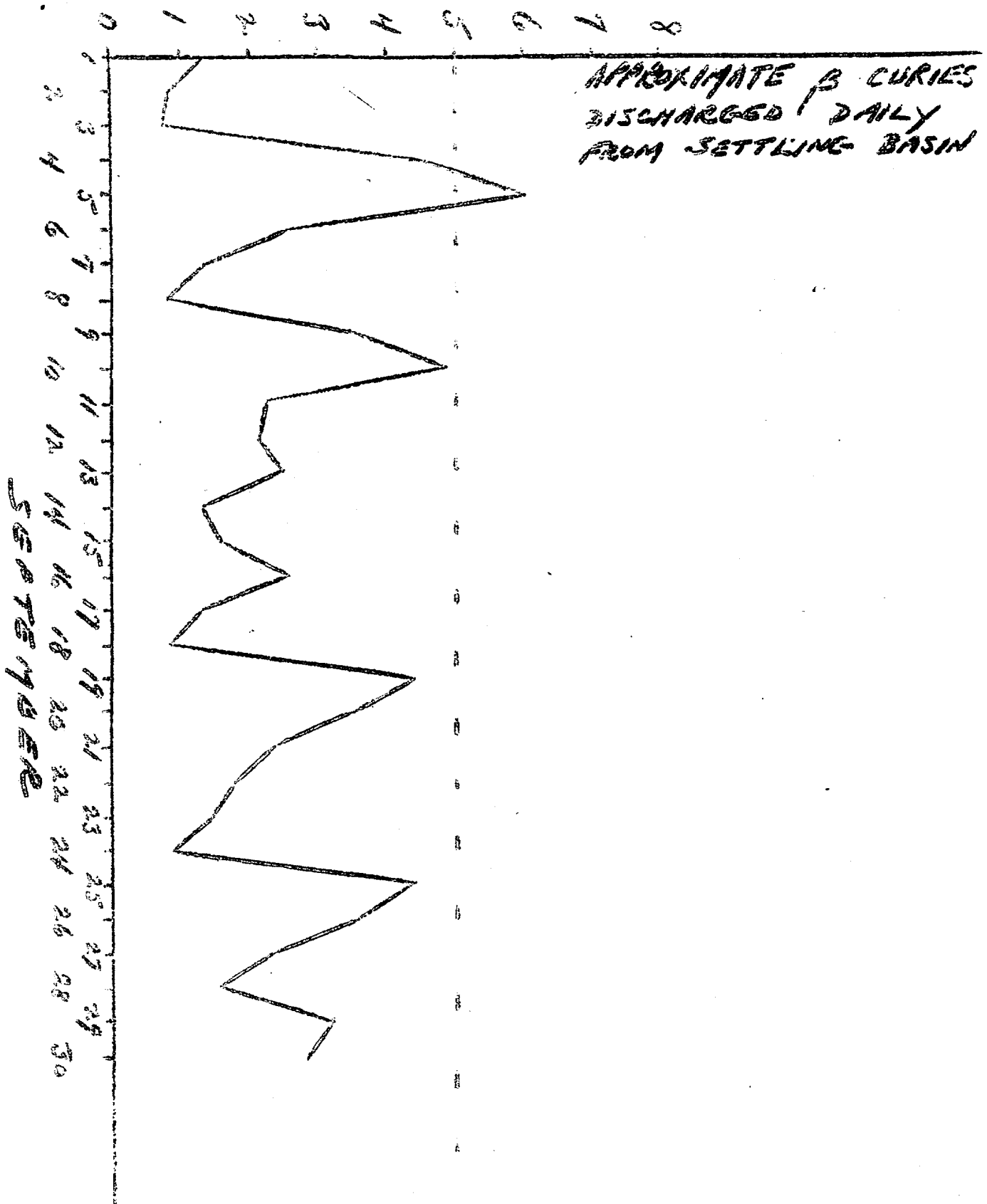
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The enclosed graphs shows the approximate curies discharged from
September 1 through September 30.


T.H.J. Burnett

THJ:rr

cc: R.H. Firminhac
K.Z. Morgan
C.E. Haynes
J.S. Felton
W.H. Ray
T.H.J. Burnett
W.D. Cottrell
Central Files
Reading Files



June 10, 1947

To: K. Z. Morgan

From: M. A. Buford

In re: Liquid Waste Monitoring - May, 1947.

Routine surveys were made of the water at the Settling Basin and White Oak Dam on alternate days. In these surveys, a thin-walled GM tube in a 1" brass container immersed in the sample was used to measure gamma activity. Discharges from the Settling Basin averaged .343 mr/hr and .013 mr/hr from the dam. Due to decontamination work being carried on in 706-D, the activity level of the water was expected to go above tolerance during the second and third weeks of the month. Therefore, the upper gate of White Oak Dam was closed, and the water was held in White Oak Lake for several days. On 5/13/47, a sample was submitted to the radiochemical laboratory for a gross β and γ analysis. A five gallon sample was boiled down to 5 cc and then evaporated to dryness. The gross β was 2429 c/min/5 ml and the γ was 5 c/min/5 ml.

Discharges from the Settling Basin averaged 367.3 β c/min/ml. The discharge was highest from 5/6/47 to 5/11/47 during which time the average was 106.1 β c/min/ml.

An agreement was reached this month with the T.V.A. whereby they would collect samples of the Clinch and Emory River water, if we would process them and count the activity. In preparation for this, background samples were taken above and below Norris Dam and from the Clinton Laboratories pump station. On June 3, W. H. Ray and T. H. J. Burnett accompanied the T.V.A. on a boat trip and collected samples from 7 sample points. Results from these samples will be reported later.

MAB:ejp

cc: K. Z. Morgan
C. E. Haynes
J. S. Felton
W. H. Ray
M. A. Buford
C. File
R. File

CLASSIFICATION CANCELLED

DATE 1-12-55
For The Atomic Energy Commission
Chief, Declassification Branch

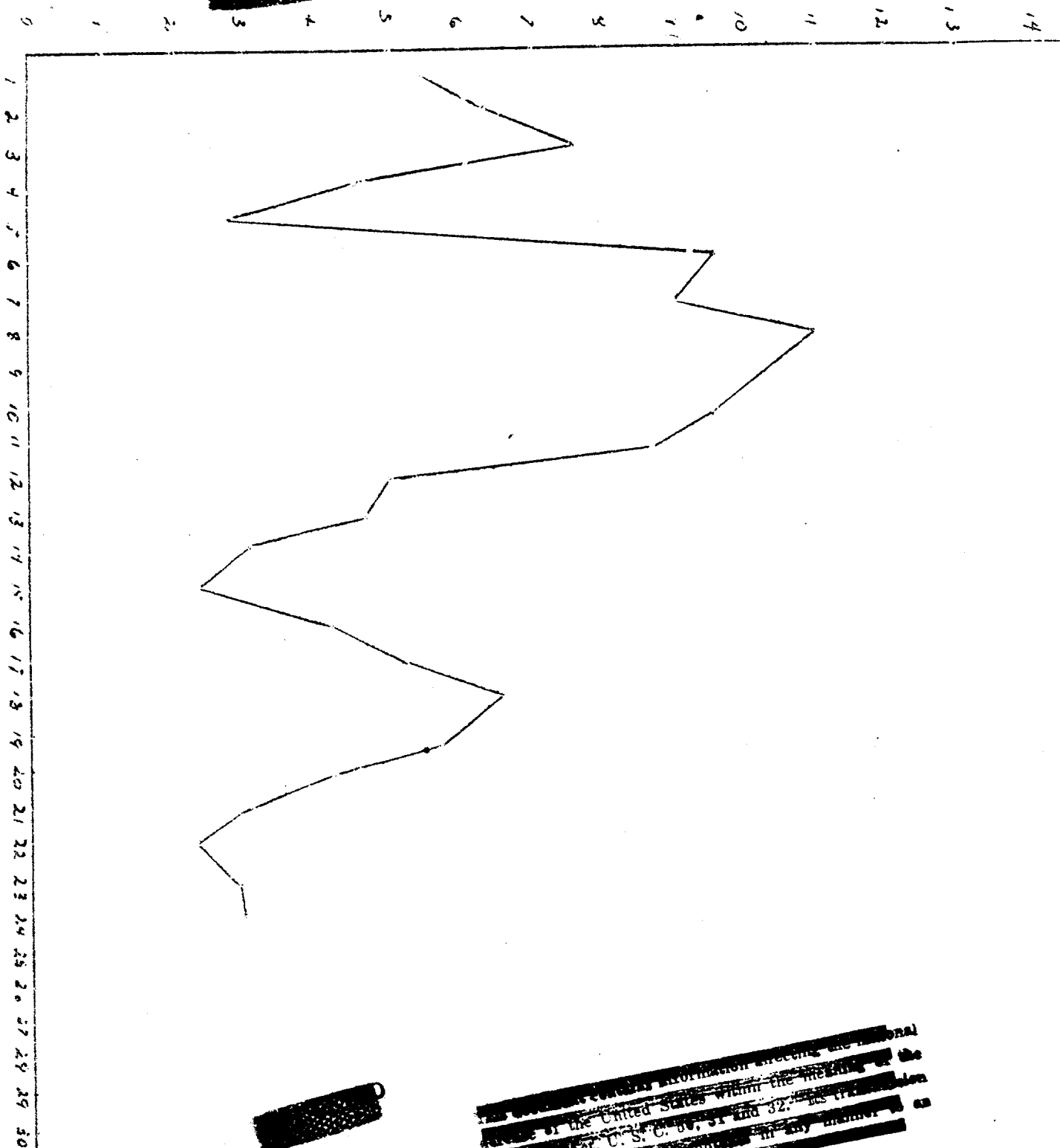
M. A. Buford
M. A. Buford

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Daniel R. Hamm 5/11/95
Technical Information Officer Date
ORNL Site

APPROXIMATE CURVES DISCHARGED FROM SETTLING BASIN

May 1947



CENTRAL FILES NUMBER

47-8.441

Rad Sur Gen

CLASSIFIED

August 1, 1947

Classification Cancelled

To: T. H. J. Burnett

Or Changed To

From: M. A. Buford

By Authority Of

By

Date

AUG 25 1971

In re: Liquid Waste Monitoring - July, 1947.

The routine surveys were made of the outlet water at the Settling Basin and at White Oak Dam on alternate days. A thin-walled GM tube in a 1" brass container immersed in the sample was used to measure gamma activity. Discharges at the Settling Basin averaged .207 mr/hr, and discharges at White Oak Dam averaged .008 mr/hr. The average discharge from the Settling Basin in cts/min/ml was 272.9. The peak of activity was reached between 7/1/47 and 7/6/47 at which time the average was 378.9. Low for the month was from 7/28/47 to 7/31/47 when the average discharge was 119.9 cts/min/ml.

The enclosed graph shows the approximate curies discharged from June 15 to July 12.

MAB:ejp

M. A. Buford

cc: T. H. J. Burnett
K. Z. Morgan
C. E. Haynes
J. S. Felton
W. H. Ray
M. A. Buford
C. File
R. File

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Jed Davis 4/10/95

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Date

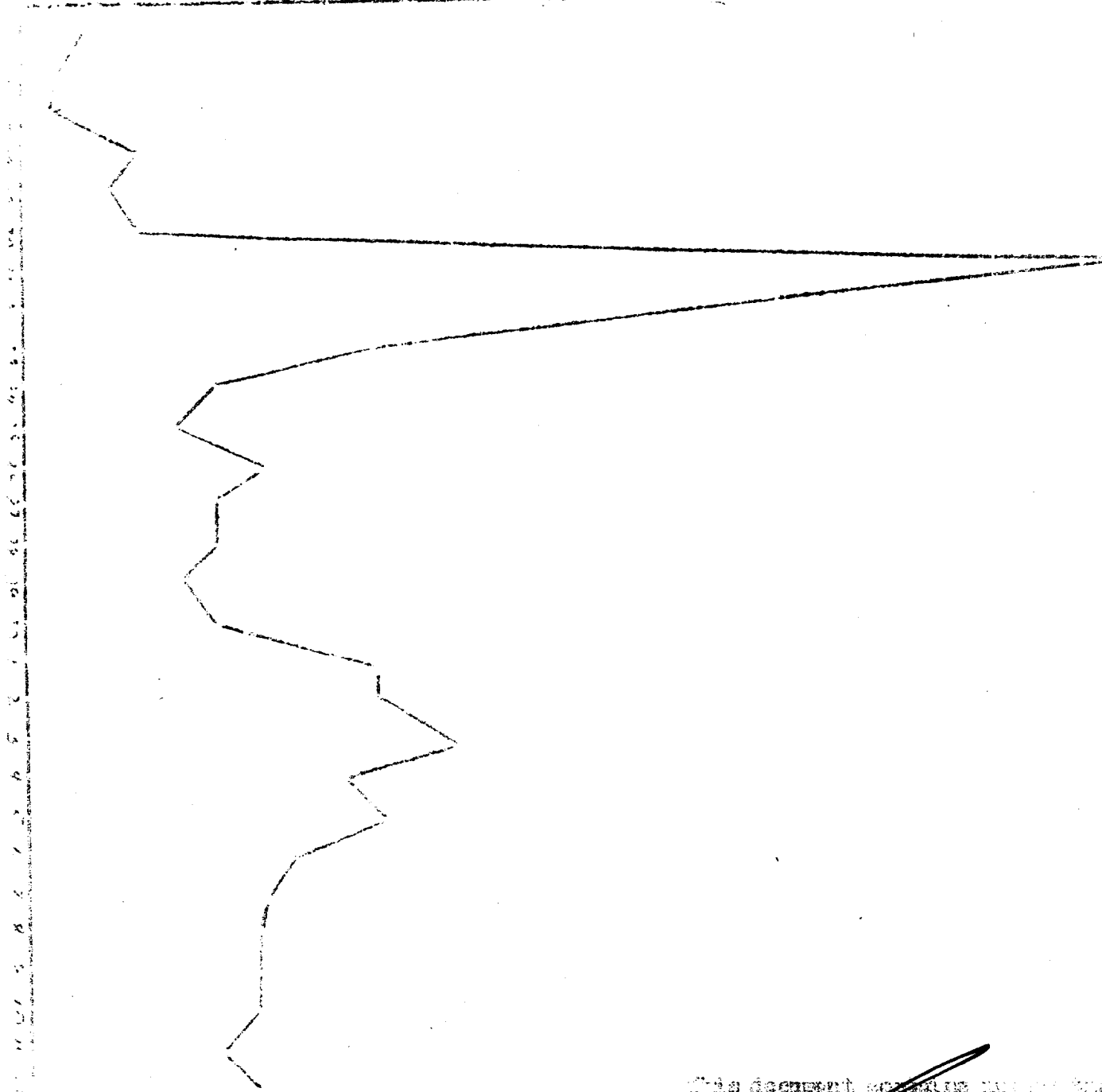
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GROUP 1
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CLASSIFICATION CANCELLED

March 4, 1948

DATE 12-15-54
for The Atomic Energy Commission

for the
Chief, Declassification Branch

OAK RIDGE NATIONAL LABORATORIES

CENTRAL FILES NUMBER

48-3- 153

To: J. C. Hart

From: W. D. Cottrell

Subject: Liquid Waste Monitoring - February 1948

A total of 20 routine daily surveys were made of the outlet waters of the Settling Basin and of White Oak Dam.

The gamma activity was measured by immersing a thin-walled GM tube within a 1" brass cylinder into the sample. The activity averaged much higher this month than for previous months due to the larger total amount of activity discharged.

Discharge activity averages and pertinent data are tabulated below, with comparative figures from preceding months.

	<u>February</u>	<u>January</u>	<u>December</u>
Settling Basin	0.136 mr/hr	0.039 mr/hr	0.127 mr/hr
White Oak Dam	0.010 mr/hr	0.004 mr/hr	0.011 mr/hr
Monthly Rainfall	8.26 inches	3.12 inches	3.00 inches
Curies Discharged	72.9 total	32.2 total	62.0 total

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Daniel R. Hanni
Technical Information Officer
ORNL Site

5/11/95
Date

Daily average beta activity of the discharge from the Settling Basin as reported in the 206 area analyses was as follows:

Average	$\frac{Dc/m/ml}{193}$	(20.64 mrep/hr)
Highest	516	February 14
Lowest	8	February 6

The attached graph shows the approximate curies discharged daily from February 1 through February 29, with ordinates interpolated for rainfall in excess of 0.1 inch. The discharge of activity from the tank farm was low and uniform from February 1 to February 10 but was relatively high for the remainder of the month. Although the permissible level of discharge was somewhat exceeded twice during the month, this is not considered serious as the time of maximum activity discharge coincided with the period of flood magnitude rainfall.

W. D. Cottrell
W. D. Cottrell

WDC:cs

Distribution:

- | | |
|--------------------|---------------------|
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| 2. K. Z. Morgan | 9. T. H. J. Burnett |
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| 4. C. L. Haynes | 11. R. G. Lawler |
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| 7. E. J. Witkowski | 14. R. Files |

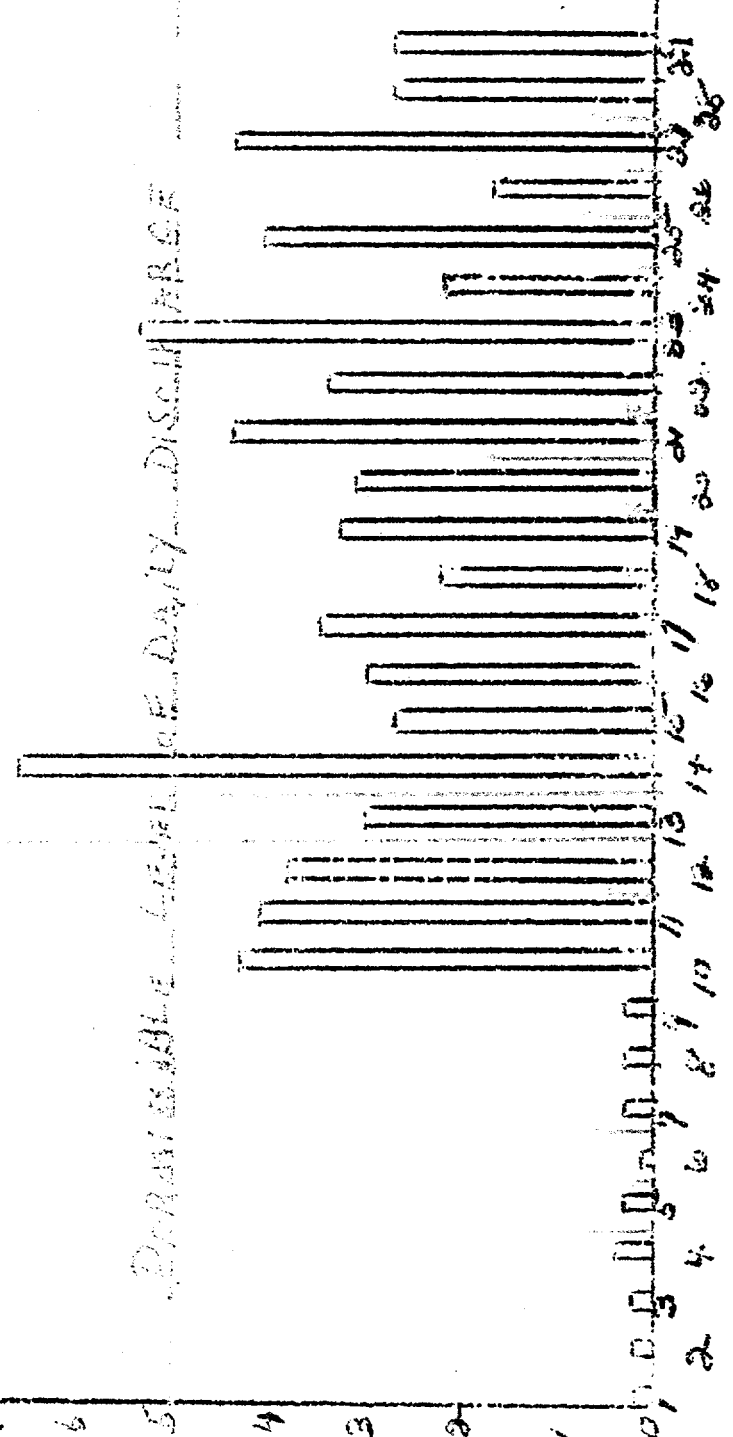
IN-HOUMPTON
 DISCHARGED DAILY
 FROM GETTING BASIN

7
6
5
4
3
2
1
0

DRAINABLE LIEBER
 OF DAILY DISCHARGE

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

FEBRUARY 1948



1. J. C. Hart 8. H. H. Ray
2. K. Z. Morgan 9. T. H. J. Burnett
3. F. Western 10. H. D. Cottrell
4. C. E. Haynes 11. R. G. Lawler
5. J. S. Felton 12. G. H. Giboney
6. L. B. Emlet 13. C. Files
7. E. J. Witkowski 14. R. Files

e. f.

To: J. C. Hart

From: W. D. Cottrell

Subject: Liquid Waste Monitoring - March, 1948

A total of 23 routine daily surveys were made of the outlet waters of the Settling Basin and of White Oak Dam.

The gamma activity was measured by immersing a thin-walled G-M tube within a 1" brass cylinder into the sample. The gamma activity of the Settling Basin discharge for this month was higher than for last month while the activity of the White Oak Dam outflow remained the same as for the previous month.

Discharge activity averages and pertinent data are tabulated below, with comparative figures from preceding months.

	<u>March</u>	<u>February</u>	<u>January</u>
Settling Basin	0.326 mr/hr	0.136 mr/hr	0.039 mr/hr
White Oak Dam	0.010 mr/hr	0.010 mr/hr	0.004 mr/hr
Monthly Rainfall	5.75 inches	8.26 inches	3.12 inches
Curies Discharged	92.1 total	72.9 total	32.2 total

Daily average beta activity of the discharge from the Settling Basin as reported in the 206 analyses was as follows:

	<u>μ c/m/ml</u>	
Average	254	(\approx 0.71 mrep/hr)
Highest	737	March 19
Lowest	91	March 7

_____ the hearing of the Atomic
_____ the national defense
_____ 1953, to
_____ the revelation of its content
_____ could and may result

The attached graph shows the approximate curies discharged daily from March 1 through March 31, with ordinates interpolated for rainfall in excess of 0.1 inch. The discharge of activity from the tank farm was relatively high for the last half of March due to the decontamination of Cell B in building 706-D. Because of the high specific activity of the Settling Basin, the volume of the effluent was considerably reduced in an effort to stay within the permissible level of total daily discharge.

Given below are five instances in which the daily curie discharge was highest.

<u>Date</u>	<u>Average $\mu\text{Ci}/\text{m}/\text{ml}$</u>	<u>Volume of Effluent (thousands of gallons)</u>	<u>Total Curies Discharged</u>
3-18	430	950	5.51
3-19	737	444	4.17
3-20	525	772	5.41
3-21	564	706	5.37
3-30	511	922	6.36

In spite of the reduction in volume of effluent, the permissible level of daily discharge was exceeded four times during this month. This is not thought to be serious as there was not a corresponding increase in activity of the White Oak Dam Outflow.

W. D. Cottrell
W. D. Cottrell
Waste Disposal Survey

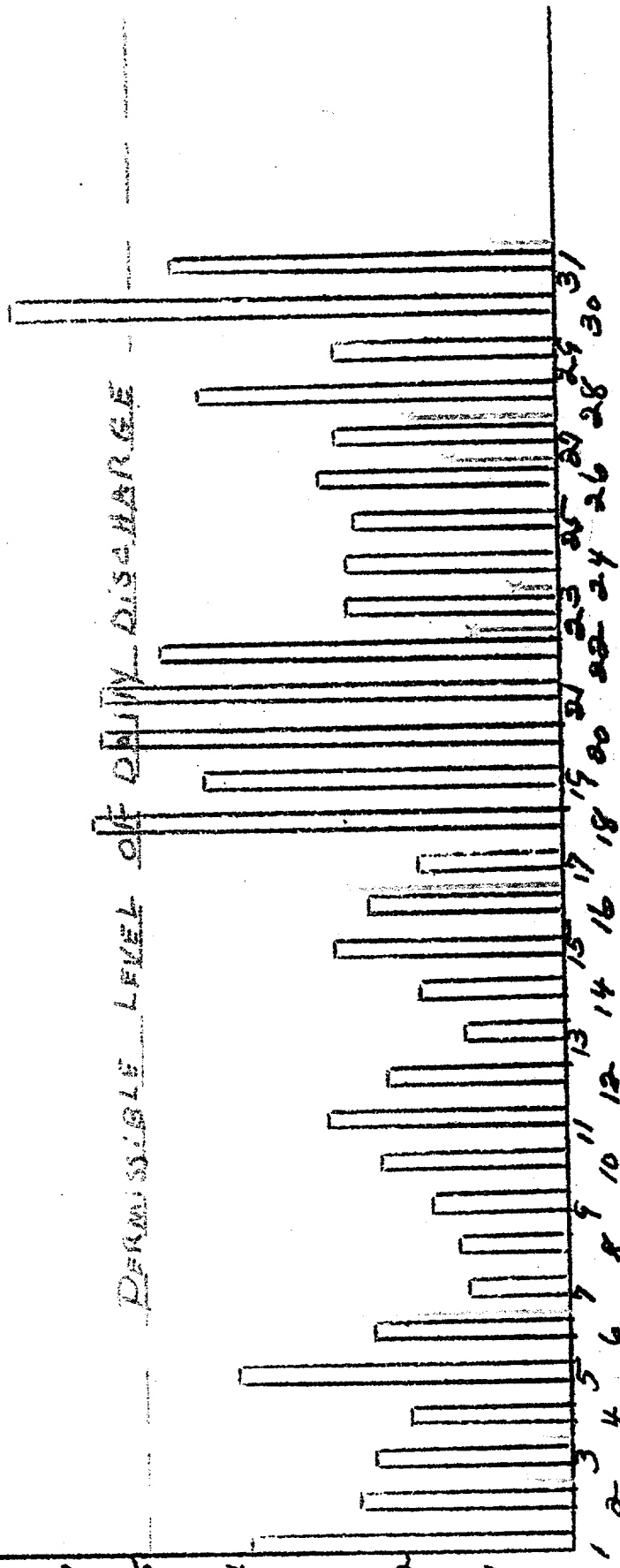
WDC:cs

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Technical Information Officer Date
ORNL Site

APPROXIMATE ACREES
DISCHARGED DAILY
FROM SETTLING BASIN

PERMISSIBLE LEVEL OF DAILY DISCHARGE



MARCH 1948